

Sunset Area 1 Site

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February 11, 2005

Mr. Nabil Fayoumi  
U.S. EPA, Region 5  
77 West Jackson Blvd., SR-6J  
Chicago, Illinois 60604-3507

Dear Mr. Fayoumi:

Enclosed for your review is the sampling and analysis plan for Creek Segment B requested in your e-mail dated January 28, 2005. As set out in your September 21, 2004 letter, Pharmacia and Solutia, Respondents to the August 2001 Amended Unilateral Administrative Order ("UAO"), submitted a proposal to EPA in which the work under the UAO would be finalized by additional sediment removal, installation of a liner in CS-B and performance of monitoring along the creek. The assumption in that proposal was that nearly 17,000 cubic yards of sediment would be removed from CS-D and F based on risk based cleanup levels set by the Agency. EPA agreed to a path forward for addressing the immediate threats to human health and the environment posed by creek sections D, F and B. A work plan was submitted to document this path on April 20, 2004. EPA conditionally approved that work plan on September 21, 2004.

The first step required by the Creek Bottom Soil Removal Work Plan ("Work Plan") was sampling to determine the amount of excavation necessary in CS-D and F. The sample results indicate that the amount of excavation necessary in CS-D and F is significantly less than expected. Thus, the issue has arisen regarding excavation amounts from CS-B. Respondents submitted a Technical Memo on January 21, 2005 setting out the options for moving forward under the Work Plan based on these results.

On January 28, 2005, EPA determined that because of the unforeseen issues that have arisen from the January 2005 results, CS-B must be sampled prior to excavation to determine the extent of the "immediate threats to human health and the environment" posed by that creek section. Based on prior sampling in CS-B, the agency has determined that the constituents that remain in CS-B above Risk Based Concentrations ("RBC") are: PCBs, zinc, bis(2-ethylhexyl)phthalate, and mercury.

Respondents agreed that they will undertake the sampling proposed in the attached work plan. That sampling will analyze creek bottom soils in CS-B for the RBCs identified by EPA (PCBs, zinc, bis(2-ethylhexyl)phthalate, and mercury). Once we obtain the

# Husch & Eppenberger, LLC

Nabil Fayoumi  
February 11, 2005  
Page 2

validated data from this sampling effort, we suggest that we meet to determine if an excavation plan can be agreed upon in order to fulfill the requirements of the UAO.

Please note that while Respondents agree to sample for mercury, any further issues with mercury should be addressed in the EE/CA and RI/FS process, as required by the UAO.

Upon your approval of the attached sampling plan, we agree to initiate the sampling activities within 30 working days after your approval.

Sincerely,

Husch & Eppenberger, LLC

By:   
Linda W. Tape

LWT/da

cc: Thomas Martin, U.S. EPA  
Sandra Bron, IEPA  
Glen Kurowski  
Steve Smith  
Richard Williams

**Sauget Area 1 Time Critical Sediment Removal Action  
Creek Bottom Soil Removal Work Plan  
Creek Segment B Sampling Plan**

**TECH MEMO**

After completion of the Sauget Area 1 Time Critical Sediment Removal Action, creek bottom soils were sampled on transects spaced at 100 ft. intervals from the upstream end of Creek Segment B at Queeny Avenue to its downstream end at Judith Lane to determine residual constituent concentrations. The maximum values of the various constituents detected in the soils were as follows:

**CS-B Creek Bottom Soil Concentrations, mg/kg**

<u>Tran.</u>	<u>Total VOC</u>	<u>Total SVOC</u>	<u>Total Pest.</u>	<u>Total Herb.</u>	<u>Total PCBs</u>	<u>Dioxin TEQ</u>	<u>Copper</u>	<u>Lead</u>	<u>Nickel</u>	<u>Zinc</u>
T0	18.88	46.303	0.88	ND	29.73	0.005	10,000	700	600	6,800
T1	0.996	0.387	0.137	0.002	1.653	<0.001	310	48	500	2,700
T2	0.387	0.013	0.010	0.002	0.249	<0.001	2,000	260	260	2,300
T3	38.318	210.833	0.001	0.034	84.83	0.017	390	400	130	2,000
T4	1.101	2.39	0.003	0.75	0.319	<0.001	440	77	280	7,000
T5	1.675	1.865	0.146	0.022	2.577	<0.001	250	52	250	3,300
T6	0.55	0.28	0.004	6.103	0.761	<0.001	570	95	220	2,600
T7	0.256	0.061	0.026	4.605	0.156	<0.001	500	55	190	2,900
T8	0.129	0.039	0.068	ND	0.318	<0.001	910	84	210	5,400
T9	0.575	0.013	0.023	2.405	0.127	<0.001	500	76	230	1,900
T10	0.635	0.124	0.032	0.002	0.073	<0.001	440	80	280	1,900
T11	0.233	0.056	0.008	0.070	1.053	<0.001	560	57	560	11,000
T12	0.571	8.438	0.010	0.048	0.160	<0.001	620	190	630	6,600
T13	0.23	0.077	0.001	0.041	0.039	<0.001	240	63	340	1,900
T14	0.100	0.003	ND	ND	ND	<0.001	33	15	130	2,700
T15	0.018	0.006	0.01	ND	0.096	<0.001	370	71	180	1,200
T16	0.155	2.945	0.18	0.017	0.12	0.001	1,500	100	170	3,800
T17	0.539	0.891	0.21	0.008	0.358	0.002	750	150	300	3,200
T18	2.951	0.078	ND	0.004	ND	<0.001	60	59	210	2,500

Site specific risk-based concentrations (RBCs) for the protection of fish were developed for these constituents of potential concern using sediment and fish tissue analytical results obtained during the Sauget Area 1 EE/CA and RI/FS. The constituent concentrations in the soils in CS-B were compared to the RBCs and the sampling transects that contained constituents at concentrations in excess of the RBCs in CS-B are as follows:

<b>SVOCs</b>	Bis(2-ethylhexyl)phthalate	0.478	<b>CS-B</b>	T3
<b>Total PCBs</b>		0.58	<b>CS-B</b>	T0, T1, T3, T5, T6, T11, T17
<b>Metals</b>	Mercury	0.18	<b>CS-B</b>	T0, T1, T2, T3, T6, T9, T11, T12, T17
	Zinc	4,739	<b>CS-B</b>	T0, T4, T8, T11, T12

Sauget Area 1 Time Critical Sediment Removal Action  
Creek Bottom Soil Removal Work Plan  
Creek Segment B Sampling Plan

TECH MEMO

PCB results are summarized below:

Summary of Creek Segment B Channel Bottom Soil PCB Concentrations, mg/kg

<u>Sampling Transect</u>	<u>Western Sample</u>	<u>Center Sample</u>	<u>Eastern Sample</u>
T0	NS	<b>29.73</b>	NS
T1	1.2198	0.0452	<b>1.6532</b>
T2	ND	0.0021	<b>0.2487</b>
T3	0.2324	6.38	<b>84.83</b>
T4	0.0061	0.0467	<b>0.319</b>
T5	ND	0.1093	<b>2.577</b>
T6	0.0018	0.029	<b>0.7613</b>
T7	0.1552	0.0555	0.0066
T8	0.0528	<b>0.3184</b>	ND
T9	<b>0.1272</b>	ND	0.0137
T10	0.0608	0.0164	<b>0.073</b>
T11	0.2992	<b>1.025</b>	0.0811
T12	<b>0.1596</b>	0.0319	0.1294
T13	<b>0.0388</b>	ND	0.0295
T14	NS	ND	NS
T15	NS	<b>0.0961</b>	NS
T16	NS	<b>0.12</b>	NS
T17	ND	ND	<b>1.2202</b>
T18	ND	ND	ND

**Notes:** 1) Bold number indicates highest detected PCB concentration in each sampling transect  
2) ND = Not Detected  
3) NS = Not Sampled

Residual concentrations of PCBs are present at all sampling transects in Creek Segment B, except for T14 and T18. Concentrations range from a low of 0.0018 mg/kg to a high of 84.83 mg/kg. The highest residual PCB concentrations in Creek Segment B are located in the northern 600 feet of the channel between the creek channel bottom center line and the eastern boundary of the channel bottom where PCB concentrations range from 0.2487 to 84.83 mg/kg. Two concentration highs occur in CS-B, one at T0 where the maximum detected PCB concentration is 29.73 mg/kg and the other at T3 where the maximum detected concentration is 84.83 mg/kg. However, as noted above, the PCB concentrations only exceeded the RBC of 0.58 mg/kg along Transects T0, T1, T3, T5, T6, T11, and T17

Based on these and on similar results in two other sections of Dead Creek, a Work Plan titled *Sauget Area 1 Time Critical Sediment Removal Action Creek Bottom Soil Removal Work Plan* was prepared and submitted to the United States Environmental Protection Agency (USEPA or Agency) by Solutia Inc. on May 17, 2004. The Work Plan was conditionally approved by the Agency on September 21, 2004. It required sampling and analyses of creek bottom soils in CS-D for PCBs and CS-F for zinc. It also required excavation of all soils containing these constituents above the relevant RBC to the water table. Excavated soils were to be transferred to a containment cell on Judith Lane and it was estimated that the soils excavated from these two creek segments would use the majority of the 19,000 cu. yd. of capacity available in the cell. The Work Plan specified that space available in the containment cell after

completion of the excavations in CS-D and CS-F was to be filled with soil excavated from areas in CS-B. There is currently a disagreement between the parties as to whether excavation below the water table, as noted in the conditionally approved work plan, is required or appropriate in CS-B.

The results of the sampling in CS-D and CS-F were submitted to the USEPA in a Technical Memorandum dated January 21, 2005. These results suggested that the total volume of soils that required excavation in CS-D and CS-F was in the order of 700 cu. yd., much less than originally anticipated. This raised questions about the volume of soil that needed to be excavated in CS-B, and on January 28, 2005, the USEPA requested a sampling plan to define the areas of CS-B that contained constituents with concentrations above the RBC. This technical memorandum presents the proposed sampling plan, which is based on the sampling program that was carried out in CS-D and CS-B.

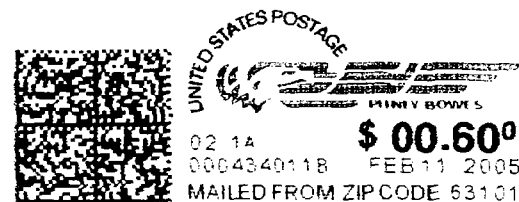
The rationale and methodology proposed for the sampling in CS-B are the same as those used for the sampling programs that were approved for use in CS-D and CS-F. Thus, the post excavation sampling results will be used to define the areas of concern and sampling activities will be designed to supplement the earlier information and allow the definition of the area and vertical extent of soils containing constituents at concentrations in excess of the relevant RBCs. Since PCBs were detected above the RBC at the locations of Transects T0, T1, T3, T5, T6, T11, T17, soil samples will be collected in these areas to be analyzed for total PCBs. Specifically, after the channel in CS-B is dewatered, the sections of creek bottom between these specific transects will be divided into a 50 ft. grid, centered on the center line of the creek channel. The grid pattern will start at the location of the transect line and will extend 50 feet in both the upstream and downstream directions from the transect line. A 50 ft. grid was selected because this is the same grid spacing that was used in sampling CS-D and is the typical width of the channel bottom in both CS-B and CS-D. Soil samples will be collected at the center point of each grid cell at one foot intervals to a depth of five feet, as was done during sampling in CS-D and CS-F. In addition, samples will be collected at each transect location at one foot intervals of depth. Since information in the 0 to 1 foot depth interval is already available from the 2002 sampling, sampling at these locations will start at a depth of one foot. This will result in a total of 88 samples collected at 19 sampling locations. Each sample will be homogenized in the field and split into two aliquots. One aliquot will be analyzed using PCB immunoassay kits calibrated to identify samples with PCB concentrations between 0.5 and 5 mg/kg. The other aliquot will be held until the results of the immunoassays are available. The aliquot of any sample that screens above 0.5 ppm total PCBs using the immunoassay kit will be submitted for laboratory analysis of Total PCBs by USEPA Method 8082. In addition, 10 percent of the samples that screen with PCBs concentrations less than 0.5 mg/kg will also be sent to the laboratory for confirmatory analyses using Method 8082.

Similarly, 50 foot grid patterns will be established around the locations of Transects T0, T4, T8, T11, and T12 and samples (a total of 65 at 14 locations) will be collected and analyzed for zinc using Method 6010 B, and soil samples for total mercury analyses will be collected from a grid pattern established around the locations of Transects T0, T1, T2, T3, T6, T9, T11, T12, and T17. The total number of investigative samples to be analyzed for mercury will be 106, taken at 23 locations. Fourteen samples, five located 50 feet upstream of the location of transect T3, four at the transect location, and five 50 feet downstream of the transect, will be analyzed for bis(2-ethylhexyl)phthalate using Method 8270C.

On completion of sampling and analysis, a report summarizing the immunoassay and laboratory data will be prepared and submitted to the USEPA. Those data will be used to define the areas of the creek bottom in CS-B that contain PCBs, zinc, mercury, or bis(2-ethylhexy)phthalate in excess of the RBCs and a map of those areas will be included in the report.

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